

SELECTIVE DELIVERY OF CRYOGENIC ENERGY TO INTERVERTEBRAL DISC TISSUE AND RELATED METHODS OF INTRADISCAL HYPOTHERMIA THERAPY

Abstract of the Disclosure

The present invention relates to devices and methods for altering the tissue in and around an intervertebral disc through localized hypothermia therapy to restore function of the disc and reduce pain. Hypothermia therapy is defined as the reduction of tissue temperature to below that of the equilibrium temperature. Target therapeutic temperatures and times are varied according to the desired treatment effect. Intended effects of hypothermia of the intervertebral disc include cellular disruption leading to cell death and or structural and chemical denaturation within the annulus fibrosus, nucleus pulposus, or nerve fibers, temporary or permanent deadening of the nerves within or surrounding the disc, induction of a healing response, angiogenesis, or accelerated degeneration and/or drying of the nucleus pulposus and/or annulus fibrosus. Various effects can be achieved by reaching different temperatures for differing periods of time or by the proximity of the hypothermia therapy device to the treatment target. Accordingly, it is an object of one or more the embodiments of the invention to provide hypothermic therapy to selected locations within an intervertebral disc utilizing a flexible and guidable cryogenic device.

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